

REMARKS

Summary of the Office Action

Claims 1-5, 7, and 9-14 stand objected to because of informalities.

Claims 1-5, 7, 9-14, 30-34, 36, and 38-43 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Kaneko et al.* (USPN 5,202,605) in view of EP 0863533 (EP '533).

Claims 1-5, 7, 9-14, 30-34, 36, and 38-43 stand rejected under that judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 and 19-27 of U.S. Patent No 6,285,123 in view of claims 1-14 of U.S. Patent No. 6,166,487.

Summary of the Response to the Office Action

Applicants have amended claim 1 and have added new claims 47-50. Accordingly, claims 1-50 are presently pending and claims 1-5, 7, 9-14, 30-34, 36, 38-43, and 47-50 are presently under consideration. In addition, Applicants submit a Terminal Disclaimer concurrently herewith.

The Objection to the Claims

Claims 1-5, 7, and 9-14 stand objected to because of informalities. Applicants have amended claim 1 in accordance with the comments of the Examiner. Accordingly, Applicants respectfully request that the objection to the claims be withdrawn.

The Double Patenting Rejection

Claims 1-5, 7, 9-14, 30-34, 36, and 38-43 stand rejected under that judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 and 19-27 of U.S. Patent No 6,285,123 in view of claims 1-14 of U.S. Patent No. 6,166,487. To facilitate

allowance of the present claims, Applicants submit concurrently herewith a Terminal Disclaimer with respect to the applied prior patents. Accordingly, Applicants respectfully request that the double patenting rejections be withdrawn.

The Rejection under 35 U.S.C. 103(a)

Claims 1-5, 7, 9-14, 30-34, 36, and 38-43 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Kaneko et al.* (USPN 5,202,605) in view of EP 0863533 (EP '533).

Applicants respectfully traverse the rejections for at least the following reasons.

With respect to independent claims 1 and 30, Applicants respectfully assert that the applied art, whether taken singly or combined, do not teach or suggest a combination including an insulation layer in which a film thickness is gradually reduced. The Office Action suggest that the insulating layer 54 in Figure 2 of *Kaneko et al.* is an “insulating layer” as claimed. Applicants respectfully disagree. In contrast with the invention of claim 1, the insulating layer 54 of *Kaneko et al.* drops off sharply rather than being gradually reduced. Applicants respectfully assert that the Office Action does not rely on EP '533 to teach this feature. Moreover, Applicants respectfully assert that EP '533 cannot remedy this feature.

In accordance with the claimed invention, improved electron emission is achieved as discussed, for example, at page 33, lines 13-22, of the present application.

Applicants respectfully assert that the rejections under 35 U.S.C. § 103(a) should be withdrawn because neither *Kaneko et al.* nor EP '533, whether taken singly or combined, teach or suggest each feature of independent claims 1 and 30, as amended. MPEP § 2143.03 instructs that “[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must

be taught or suggested by the prior art. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974).” Furthermore, Applicants respectfully assert that dependent claims 2-5, 7, 9-14, 31-34, 36, and 38-43 are allowable at least because of their dependence from independent claims 1 and 30 and the reasons set forth above.

Rejoinder

Applicants respectfully assert that withdrawn dependent claims 8, 15-16, 35, 37, and 44-46 are allowable at least because of their dependence from independent claims 1 and 30 and the reasons set forth above. Thus, Applicants respectfully request rejoinder of dependent claims 8, 15-16, 35, 37, and 44-46.

New Claims 47-50

Applicants have added new claims 47-50 to further define the invention. Applicants respectfully assert that these claims are further allowable because that the applied art does not teach or suggest the features recited in new claims 47-51.

Conclusion

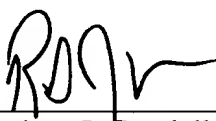
In view of the foregoing, Applicants respectfully request reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of the response, the Examiner is invited to contact the Applicant’s undersigned representative to expedite prosecution.

Attached hereto is a marked-up version of the changes made by the current amendment. The attachment is captioned “Version with markings to show changes made.”

If there are any fees due in connection with the filing of this paper, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted

MORGAN, LEWIS & BOCKIUS LLP

By: 
Robert J. Goodell
Reg. No. 41,040

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Customer Number 009629
MORGAN, LEWIS & BOCKIUS LLP
1111 Pennsylvania Avenue, N.W.
Washington, DC 20004
202-739-3000



VERSION WITH MARKINGS TO SHOW CHANGES MADE

Please amend claim 1 to read as follows:

1. (Amended) An electron-emitting device comprising:

an electron source layer made of one of a metal, a metal alloy and a semiconductor;

an insulating layer formed on said electron source layer, said insulating layer having at least one island region serving as an electron-emitting section in which film thickness of said insulating layer is gradually reduced;

a carbon region made of one of carbon and a carbon compound provided on at least one of a top, bottom and inside of said island region; and

a metal thin film electrode formed on said insulating layer, wherein electrons are emitted upon application of an electric field between said electron source layer and said metal thin film electrode.

Please add new claims 47-50 to read as follows:

47. (New) An electron-emitting device as claimed in claim 1, wherein said island region defines a concave recess portion.

48. (New) An electron-emitting device as claimed in claim 1, wherein at least one of said carbon region and said metal thin film electron has a film thickness that is gradually reduced in the island region.

49. (New) A display as claimed in claim 1, wherein said island region defines a concave recess portion.

50. (New) A display as claimed in claim 1, wherein at least one of said carbon region and said metal thin film electron has a film thickness that is gradually reduced in the island region.